Patent
Attorney Docket No. 1030681-000642

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	
Youn-joon Sung et al.	Group Art Unit: 2828
Application No.: 10/813,157	Examiner: RORY B FINNEREN
Filing Date: March 31, 2004	Confirmation No.: 4476
Title: LASER DIODE AND METHOD OF MANUFACTURING THE SAME USING SELF-ALIGN PROCESS	

AMENDMENT/REPLY TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed is a reply for the above-identified patent application.

☐ A Petition for Extension of Time is enclosed.

☐ _____ Terminal Disclaimer(s) and the ☐ $ 65 ☐ $ 130 fee per Disclaimer due under 37 C.F.R. § 1.20(d) are enclosed.

☐ Also enclosed is/are: _____

☐ Small entity status is hereby claimed.

☐ Applicant(s) requests continued examination under 37 C.F.R. § 1.114 and enclose the ☐ $ 395 ☐ $ 790 fee due under 37 C.F.R. § 1.17(e).

☐ Applicant(s) requests that any previously unentered after final amendments not be entered. Continued examination is requested based on the enclosed documents identified above.

☐ Applicant(s) previously submitted _____ on _____ for which continued examination is requested.

☐ Applicant(s) requests suspension of action by the Office until at least _____, which does not exceed three months from the filing of this RCE, in accordance with 37 C.F.R. § 1.103(c). The required fee under 37 C.F.R. § 1.17(i) is enclosed.

☐ A Request for Entry and Consideration of Submission under 37 C.F.R. § 1.129(a) (1809/2809) is also enclosed.

☒ No additional claim fee is required.

☐ An additional claim fee is required, and is calculated as shown below:

AMENDED CLAIMS					
	No. of Claims	**Highest No. of Claims Previously Paid For**	**Extra Claims**	**Rate**	**Additional Fee**
Total Claims	23	Minus 23=	0	x $ 25 (1202)	$ 0
Independent Claims	2	Minus 3=	0	x $ 50 (1201)	0
If Amendment adds multiple dependent claims, add $ 360 (1203)					$ 0
Total Claim Amendment Fee					**$ 0**
☐ Small Entity Status claimed - subtract 50% of Total Claim Amendment Fee					0
TOTAL ADDITIONAL CLAIM FEE DUE FOR THIS AMENDMENT					**$ 0**

☐ Charge _____ to Deposit Account No. 02-4800 for the fee due.

☐ A check in the amount of _____ is enclosed for the fee due.

☐ Charge_____ to credit card for the fee due. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.20(d) and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

BUCHANAN INGERSOLL PC

Date November 7, 2006

By: _____
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	**Mail Stop Amendment**
Youn-joon Sung et al.	Group Art Unit: 2828
Application No.: 10/813,157	Examiner: RORY B FINNEREN
Filed: March 31, 2004	Confirmation No.: 4476
For: LASER DIODE AND METHOD OF MANUFACTURING THE SAME USING SELF-ALIGN PROCESS	

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the non-final Office Action dated August 15, 2006, Applicants request reconsideration of the instant application. Claims 1-23 remain pending.

Rejections Under 35 U.S.C. §103

Claims 1-23 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Kozaki* (U.S. Patent Pub. No. 2002/00536760). Applicants respectfully traverse this rejection.

Independent claim 1 recites a laser diode comprising, among other elements, a buried layer having a contact hole corresponding to the ridge of the upper material layer and a protective layer formed on the buried layer. Independent claim 11 recites a manufactured method of laser diode comprising, among other elements, the steps of forming a buried layer on the top structure to cover the surface of the ridge and forming a protective layer and an etched back material layer on the surface of the buried layer.

The *Kozaki* publication discloses a nitride semiconductor having a p-type optical guide layer 109, a p-type cladding layer 110, and a p-type contact layer 111 sequentially

formed on an active layer 107. The p-type optical guide layer 110 and the p-type contact layer 111 are applied in the form of a ridge stripe. A protective film 162 is formed on the ridge stripe such that the upper surface (p-type contact layer 111) of the ridge stripe is exposed. The p-type electrode 120 is then formed on the surface of the exposed p-type contact layer 111, and the multilayered dielectric film 164 is formed over the p-type electrode 120.

In a previous response, Applicants asserted that the *Kozaki* publication failed to anticipate claims 1 and 11 because of the failure to teach a structural relationship between an upper electrode, a protective layer, and a buried layer, as recited in the claims.

In the current Office Action, the Patent Office withdrew the anticipation rejection of claims 1 and 11 over the *Kozaki* publication and issued an obviousness rejection of these claims over the same reference. Particularly, the Office asserts that the differences in the structural relationships between the layers of the *Kozaki* publication and those as recited in claims 1 and 11 would have been obvious to a skilled artisan because the rearranging of parts of the device requires only routine skill (see Office Action, pg. 3). Applicants disagree at least because the Office fails to appreciate that the structural relationship between the electrode protective layer, and buried layer prevents the occurrence of leakage current around the ridge and thus lowers the operation current of the ridge wave guide structure. See Applicants' Specification, page 4, lines 19-21. Moreover, the protective layer prevents over etching of the buried layer so that a stable wave guide structure can be obtained. See Applicants' Disclosure, page 4, lines 22-23. These factors are not present in the applied art. Based on these considerations, it should be readily apparent that the structural relationship between the protective layer and the buried layer as recited in claims 1 and 11 involves more than a mere rearrangement of parts. Particularly, the buried layer and the protective layer as

recited in claims 1 and 11 are strategically placed to achieve the advantageous results, as described above. Because the *Kozaki* patent fails to contemplate the existing problem or the achieved results, Applicants submit that without prior knowledge of Applicants' invention those skilled in the art would lack the of the requisite motivation to rearrange the existing structure of the *Kozaki* publication to achieve the claimed results.

To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Moreover, obviousness "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hosp. Sys. V. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). For at least these reasons, Applicants request that the rejection under 35 U.S.C. §103 be withdrawn, and claims 1 and 11 and their corresponding dependent claims be allowed.